

PCG-FR130

SERVICE MANUAL

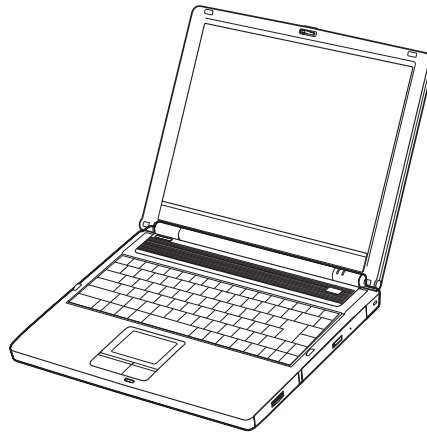
For American Area

US Model

Canadian Model

Ver 2-2003C

Revision History



Lineup : PCG-FR130



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- Design and specifications are subject to change without notice.

NOTEBOOK COMPUTER

SONY®

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Caution Markings for Lithium/Ion Battery - The following or similar texts shall be provided on battery pack of equipment or in both the operating and the service instructions.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION: The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100°C (212°F) or incinerate.

Dispose of used battery promptly.

Keep away from children.

CAUTION: Changing the back up battery.

- Overcharging, short circuiting, reverse charging, mutilation or incineration of the cells must be avoided to prevent one or more of the following occurrences; release of toxic materials, release of hydrogen and/or oxygen gas, rise in surface temperature.
- If a cell has leaked or vented, it should be replaced immediately while avoiding to touch it without any protection.



Service and Inspection Precautions

1. Obey precautionary markings and instructions

Labels and stamps on the cabinet, chassis, and components identify areas requiring special precautions. Be sure to observe these precautions, as well as all precautions listed in the operating manual and other associated documents.

2. Use designated parts only

The set's components possess important safety characteristics, such as noncombustibility and the ability to tolerate large voltages. Be sure that replacement parts possess the same safety characteristics as the originals. Also remember that the \triangle mark, which appears in circuit diagrams and parts lists, denotes components that have particularly important safety functions; be extra sure to use only the designated components.

3. Always follow the original design when mounting parts and routing wires

The original layout includes various safety features, such as inclusion of insulating materials (tubes and tape) and the mounting of parts above the printer board. In addition, internal wiring has been routed and clamped so as to keep it away from hot or high-voltage parts. When mounting parts or routing wires, therefore, be sure to duplicate the original layout.

4. Inspect after completing service

After servicing, inspect to make sure that all screws, components, and wiring have been returned to their original condition. Also check the area around the repair location to ensure that repair work has caused no damage, and confirm safety.

5. When replacing chip components...

Never reuse components. Also remember that the negative side of tantalum capacitors is easily damaged by heat.

6. When handling flexible print boards...

- The temperature of the soldering-iron tip should be about 270°C.
- Do not apply the tip more than three times to the same pattern.
- Handle patterns with care; never apply force.

Caution: Remember that hard disk drives are easily damaged by vibration. Always handle with care.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

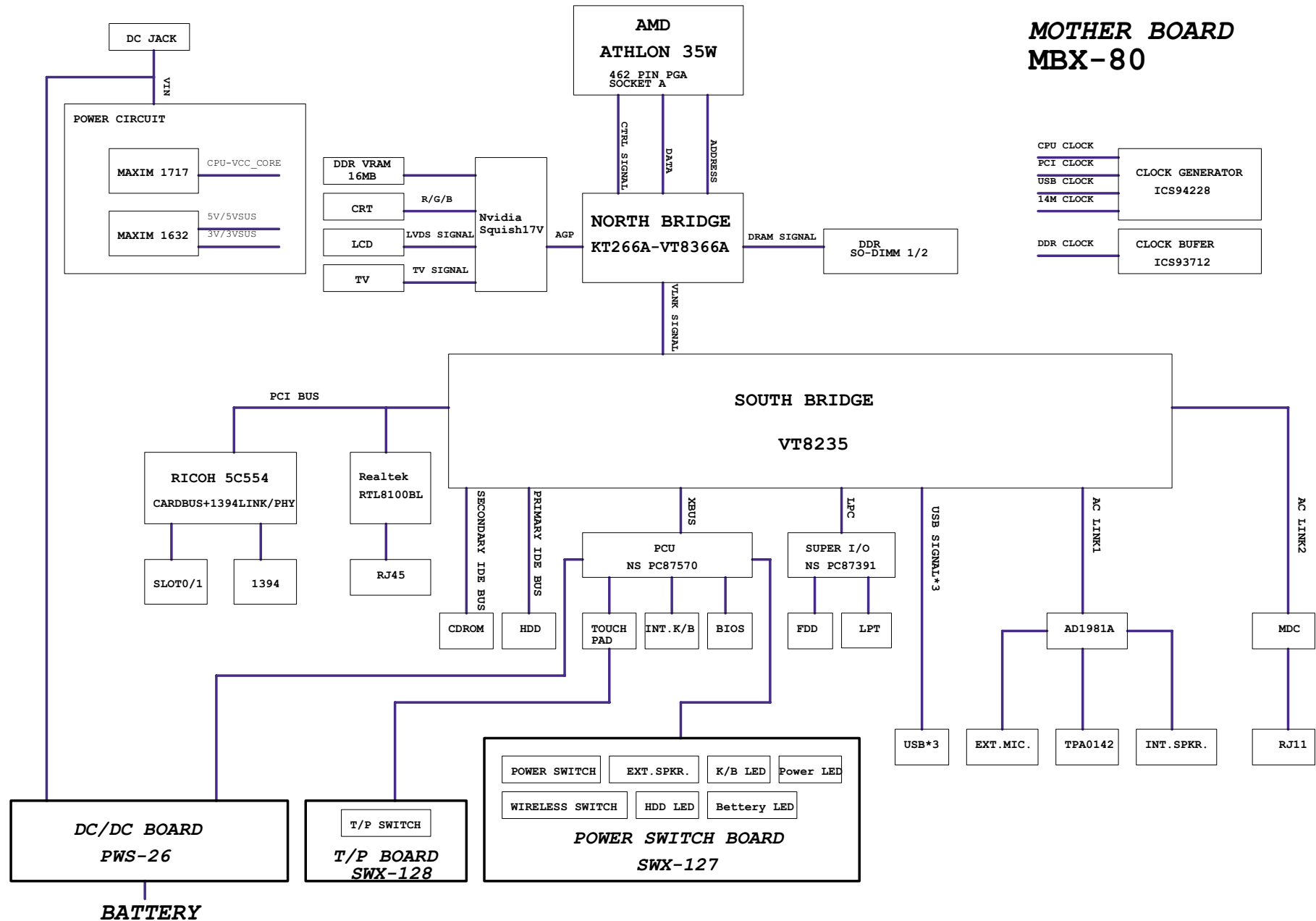
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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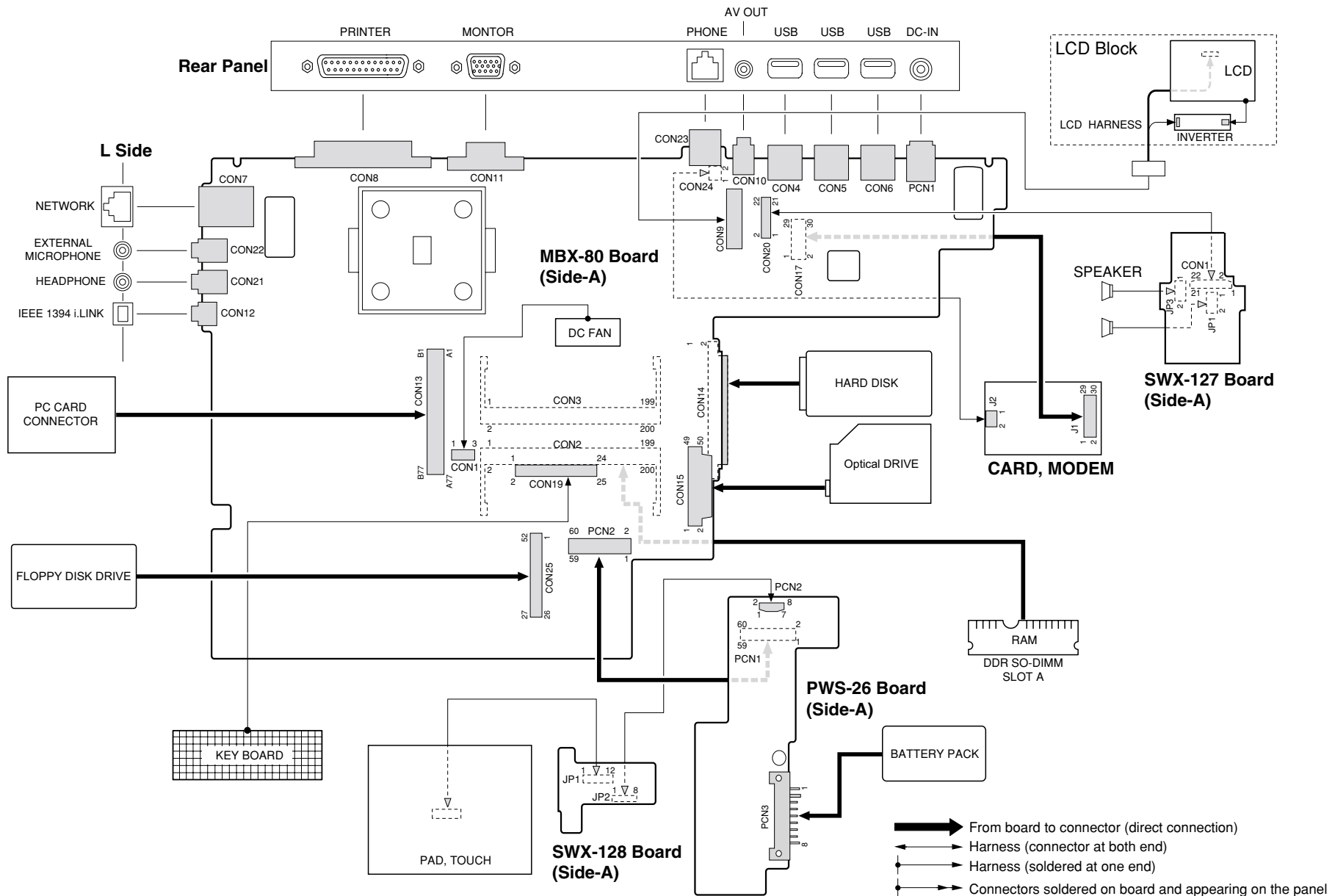
History of the changes is shown as the
“Revision History” at the end of this data.

CHAPTER 1. BLOCK DIAGRAM



CHAPTER 2.

FRAME HARNESS DIAGRAM



CHAPTER 3.

EXPLODED VIEWS AND PARTS LIST

NOTE:

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- When two or more parts are shown in parallel, use the part described first as the main part.
- The parts marked “\$” are the High Value Modules.
- The parts marked “#” are the parts on which barcode label is attached.
- The indication [CH] is used for identification of part type.
- Regarding the boards of this model, the discrete parts on the boards cannot be replaced. However, Some connectors can be replaced.

【使用上の注意】

- *印の部品は常備在庫しておりません。
- 図面番号のない部品は供給しません。
- 併記部品の場合、上部記載部品をメイン部品として使用してください。
- 部品名称の前に\$印のついた部品は、High Value Moduleです。
- 商品名称の前に#印のついた部品は、バーコードラベル貼付部品です。
- [CH]の表記は部品管理上の識別です。
- 本モデルの基板については、基板上の各部品の修理は行うことができません。ただし、一部のコネクタについては、修理可能です。

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

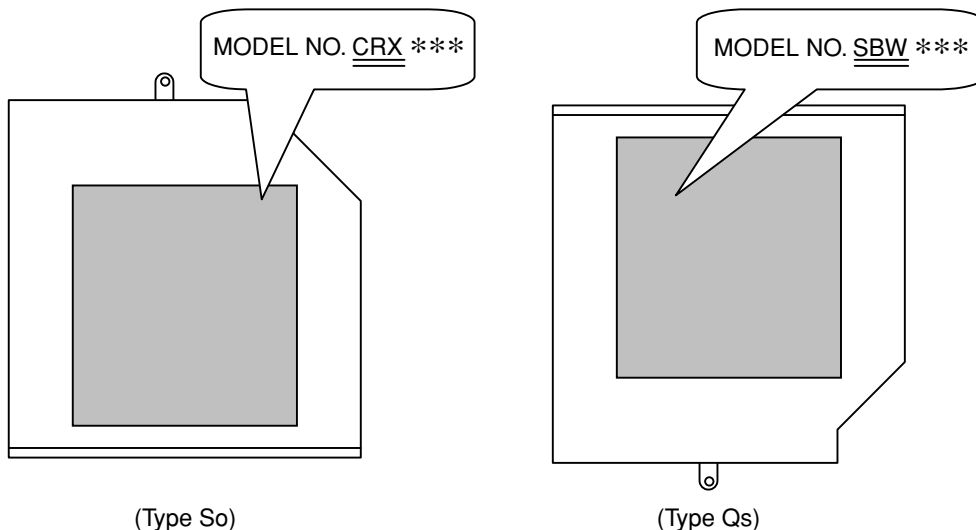
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Δ 印の部品、または Δ 印付きの点線で囲まれた部品は、安全性を維持するために重要な部品です。従って交換時は、必ず指定の部品を使用してください。

How to Use Parts Differently.

This series of product uses the two different types of optical drive (So type and Qs type).
When replacing the optical drive, use the So type parts for the So type optical drive, and use the Qs type parts for the Qs type optical drive.
Replace the peripheral parts of optical drive with the same type in the same way.

[How to identify the So and Qs types of parts]



[Example of showing in repair part list]

<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>
999	8-458-828-72 \$ #	RW DRIVE CRX810E-VN (So)
999	1-796-627-11 \$ #	COMBO DRIVE (SBW-241) (Qs)

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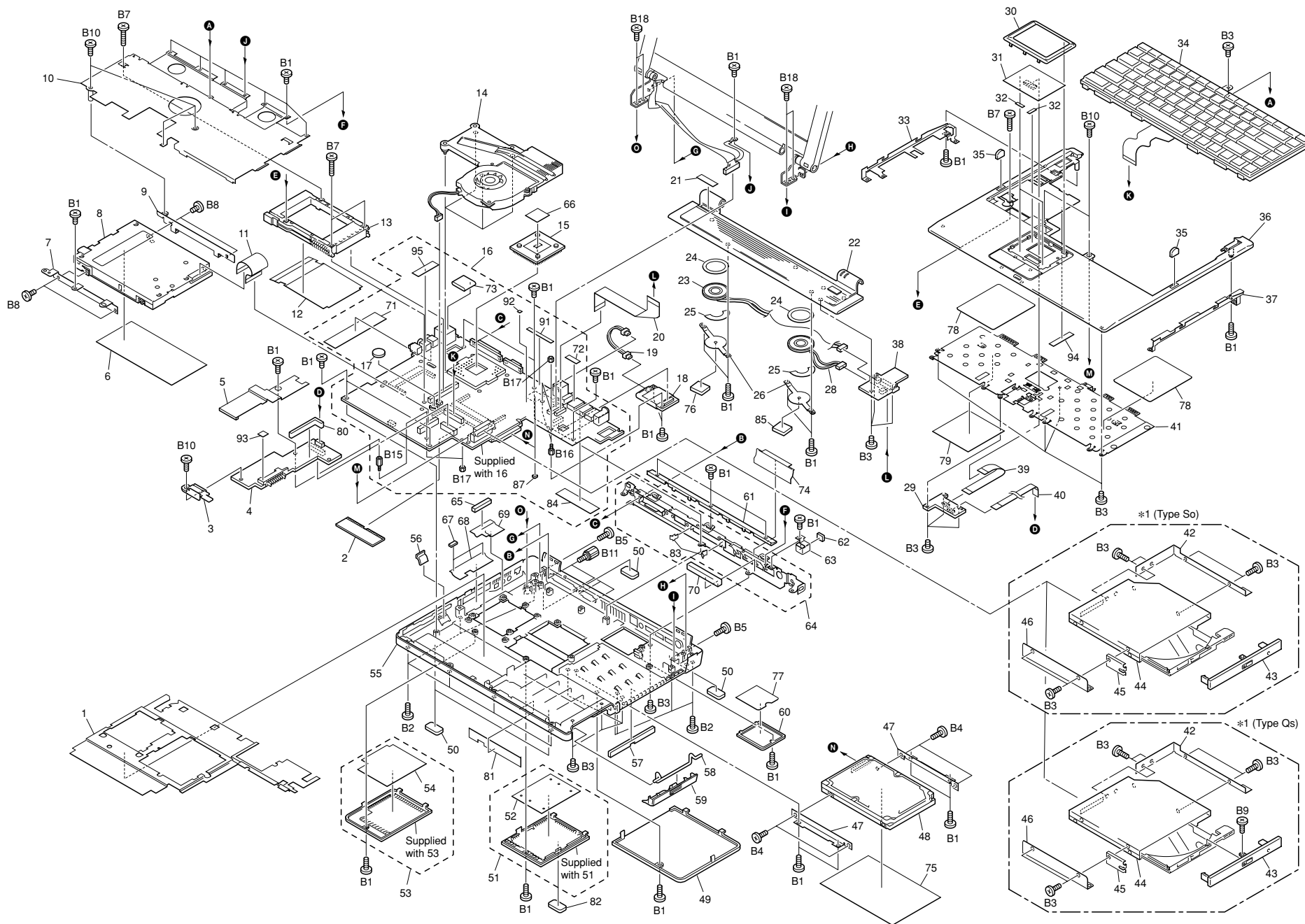
3-1. Main Section

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
1	4-671-624-01	[CH]...INSULATOR BOTTOM	54	4-671-629-01	[CH]...INSULATOR MINIPCI
2	6-600-116-01	IC M470L3224DT0-CB0 (DDR DIMM 256MB)	55	X-4625-750-1	[CH]...HOUSING BOTTOM ASSY
2	6-600-158-01	IC HYS64D32020GDL-7-B (DDR DIMM 256MB)	56	4-670-193-01	[CH]...LENS FDD
3	X-4625-749-1	[CH]...LATCH DETECTOR ASSY	57	4-671-985-01	[CH]...CUSHION HDD
4	A-8067-869-A \$	[CH]...COMPLETE PWB PWS-26 (C)	58	4-671-645-01	[CH]...DOOR BATTERY SPRING
5	4-671-626-01	[CH]...INSULATOR PWS	59	4-670-217-01	[CH]...DOOR BATTERY
6	4-671-627-01	[CH]...INSULATOR FDD	60	4-670-216-01	[CH]...COVER MODEM
* 7	4-670-247-01	[CH]...BRACKET FDD R	61	4-670-194-01	[CH]...COVER HOOD
8	1-796-692-11 \$ #	NE5.1 FDD (NE)	62	4-671-986-01	[CH]...CUSHION DC JACK
* 9	4-670-248-01	[CH]...BRACKET FDD L	* 63	4-670-232-01	[CH]...PLATE DC
* 10	4-670-239-01	[CH]...BRACKET KEYBOARD	64	X-4625-751-1	[CH]...BRACKET IO ASSY
11	1-827-190-11	[CH]...NE5.1 FFC(FDD)	65	4-673-617-01	[CH]...GASKET AUDIO
12	4-671-625-01	[CH]...INSULATOR PC CARD	66	4-668-785-01	THERMAL SHEET CPU
13	1-761-695-11	[CH]...NE5.1 PC CARD(EJECTER)	67	4-672-841-01	[CH]...GASKET CARD HOLDER
14	A-8113-152-A	[CH]...NE51 COOLING UNIT ASSY	68	4-672-843-01	[CH]...SHEET CU CARD HOLDER
15	6-703-983-01	IC AXMD2000FJQ3C (Athlon XP 2000+)	69	4-672-842-01	[CH]...SHEET CU MIC
16	A-8067-865-A \$ #	[CH]...COMPLETE PWB MBX-80 (C)	71	4-672-846-01	[CH]...SHEET KAPTON MIC
17	1-756-148-11	SECONDARY,BATTERY, LITHIUM	72	4-672-847-01	[CH]...SHEET CU TV
18	1-761-606-12	CARD, MODEM	73	4-672-849-01	[CH]...GASKET LAN
19	1-827-193-11	[CH]...NE5.1 CABLE(MDC-MBX)	74	4-672-850-01	[CH]...SHEET CU IO
20	1-827-191-11	[CH]...NE5.1 FFC(PWR)	75	4-672-852-01	[CH]...SHEET HDD
21	4-672-246-21	ID LABEL (U)	76	4-672-855-01	[CH]...GASKET SPEAKER
22	X-4625-746-1	[CH]...HOOD KEYBOARD ASSY	77	4-672-857-01	[CH]...SHEET AL MODEM
23	1-825-426-11	[CH]...NE5.1 SPEAKER(L)	78	4-672-858-01	[CH]...SHEET BRACKET TOUCHPAD
24	4-644-357-01	CUSHION SPK	79	4-672-860-01	[CH]...CUSHION BRACKET TOUCHPAD
25	4-654-631-01	GUARD SPK	80	4-672-862-01	[CH]...CUSHION PWS
26	4-671-631-01	[CH]...BRACKET SPEAKER	81	4-672-861-01	[CH]...SHEET BATTERY
28	1-825-427-11	[CH]...NE5.1 SPEAKER(R)	82	4-672-931-01	[CH]...FOOT CENTER
29	A-8067-868-A \$	[CH]...COMPLETE PWB SWX-128	83	4-665-232-01	[CH]...FIN GND
30	4-670-198-01	[CH]...ESCUSHION TOUCHPAD	84	4-673-626-01	[CH]...SHEET CAPTON USB
31	1-796-319-31	[CH]...PAD, TOUCH	85	4-673-615-01	[CH]...GASKET SPEAKER R
32	4-672-077-01	[CH]...ADHESIVE TAPE TP	87	4-673-620-01	[CH]...CUSHION S
* 33	4-670-236-01	[CH]...BRACKET PALMREST L	91	4-673-300-01	[CH]...CUSHION FIN
34	1-477-767-21 \$ #	KEY BOARD UNIT (US)	92	4-673-301-01	[CH]...CUSHION FAN
35	4-671-634-01	[CH]...CUSHION PALMREST	93	4-673-303-01	[CH]...SPACER TOUCHPAD BUTTON
36	X-4625-747-1	[CH]...PALMREST ASSY	94	4-673-304-01	[CH]...SPACER PC CARD
* 37	4-670-235-01	[CH]...BRACKET PALMREST R	95	4-673-305-01	[CH]...SHEET BLIND JACK
38	A-8067-867-A \$	[CH]...COMPLETE PWB SWX-127	B1	4-641-726-12	SCREW (M2), SPECIAL HEAD
39	1-827-189-11	[CH]...NE5.1 FFC(TP)	B2	4-644-637-01	GRIP, M2 EG
40	1-827-192-11	[CH]...NE5.1 FFC(PWS-TP)	B3	4-665-205-01	SPECIAL FLAT HEAD (EG GRIP),M2
* 41	4-670-237-01	[CH]...BRACKET TOUCHPAD	B4	4-673-018-02	SCREW SPECIAL HEAD
* 42	4-670-242-01	[CH]...BRACKET DRIVE R	B5	4-673-655-01	SCREW +B
43	X-4625-754-1	[CH]...BEZEL DRIVE S ASSY (So)	B7	4-644-637-42	GRIP, M2 EG
43	X-4625-818-1	[CH]...BEZEL DRIVE Q ASSY (Qs)	B8	4-646-807-11	0 PLATE M2.5 (FDD)
44	8-458-828-72 \$ #	RW DRIVE CRX810E-VN (So)	B9	4-650-481-01	SCREW(B1.7),TAPPING (Qs)
44	1-796-627-11 \$ #	COMBO DRIVE (SBW-241) (Qs)	B10	4-645-214-61	GRIP, M2
* 45	4-670-244-01	[CH]...SPRING DRIVE R	B11	4-635-966-01	SCREW (HEX)
* 46	4-670-243-01	[CH]...BRACKET DRIVE L	B15	4-673-121-01	SCREW PWS
* 47	4-670-249-01	[CH]...BRACKET HDD	B16	4-651-989-41	SPACER (MBX)
48	A-8113-860-A \$ #	ASSY HDD HDD 30GB (H) (S)	B17	7-622-205-05	NUT M2 TYPE2
49	4-670-213-01	[CH]...COVER HDD	B18	4-673-019-01	SCREW +B
50	4-671-635-01	[CH]...FOOT			
51	X-4625-756-1	[CH]...COVER MEMORY ASSY			
52	4-671-630-01	[CH]...INSULATOR MEMORY			
53	X-4625-755-1	[CH]...COVER MINIPCI ASSY			

△ [COR]

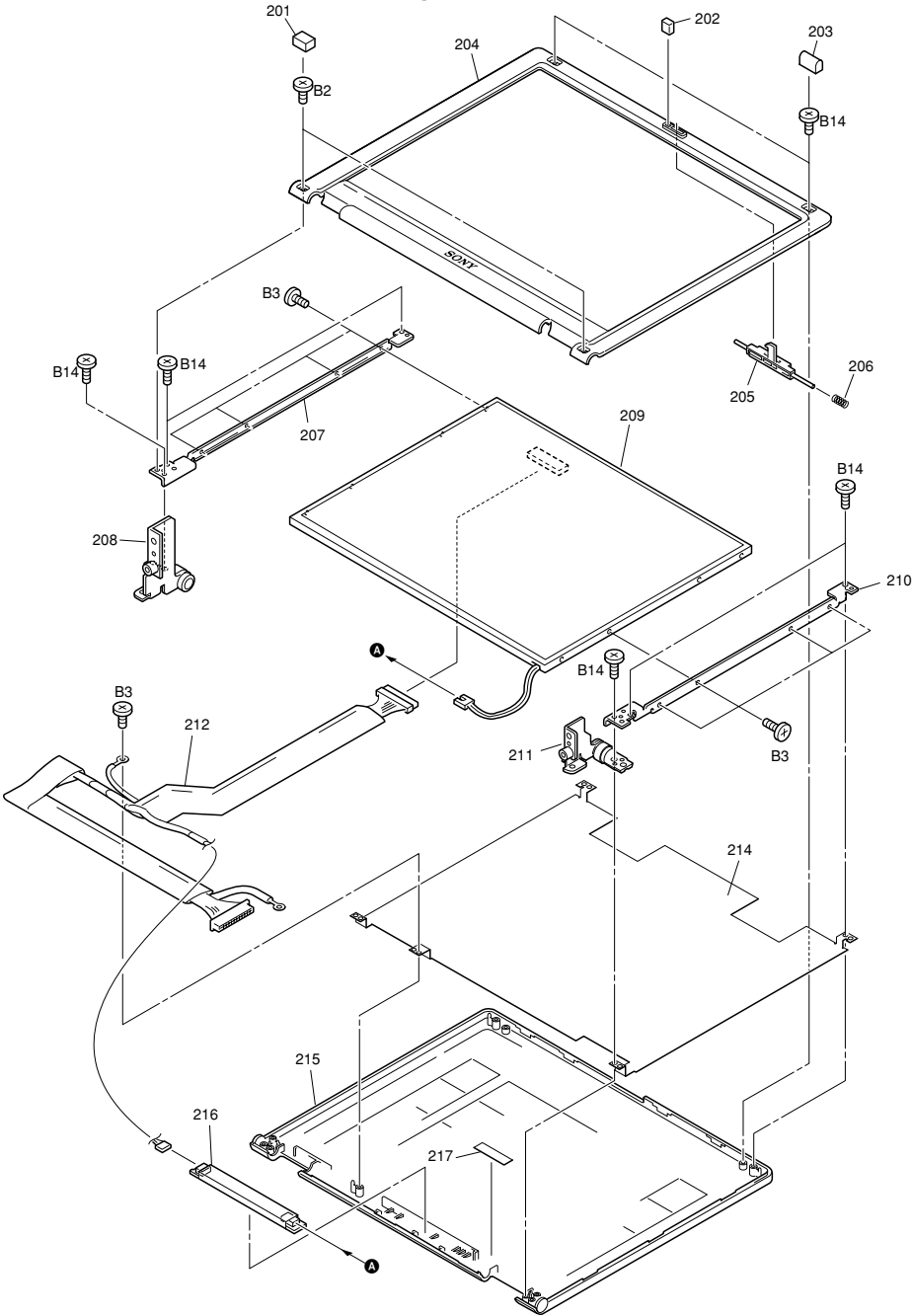
A-8113-859-A \$ # ASSY HDD 40GB (H) (S)

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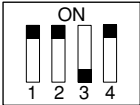
*1 By referring to "[How to identify the So and Qs types of parts] (page 3-1), use the So type parts when replacing the So type optical drive, and use the Qs type parts when replacing the Qs type optical drive.

3-2. LCD Section – Made by HI –



Ref.No.	Part No.	Description
201	4-671-639-01	[CH]...CUSHION HINGE
202	4-671-637-01	[CH]...CUSHION LATCH
203	4-671-638-01	[CH]...CUSHION LCD
204	X-4625-821-1	[CH]...BEZEL DISPLAY ASSY (14.1) (S)
205	4-670-228-01	[CH]...BUTTON LATCH LCD
206	4-671-640-01	[CH]...SPRING LATCH LCD
* 207	4-671-459-01	[CH]...BRACKET LCD L (H14.1)
208	4-671-457-01	[CH]...HINGE L
209	A-8113-855-A \$ #	ASSY LCD 14 (H) GT2 (S)
* 210	4-671-458-01	[CH]...BRACKET LCD R (H14.1)
211	4-671-456-01	[CH]...HINGE R
212	1-827-195-11	[CH]...NES.1 14LCD CABLE
214	4-671-636-01	[CH]...LCD SHIELDING
215	X-4625-820-1	[CH]...HOUSING DISPLAY ASSY (S)
216	1-476-317-21	INVERTER UNIT
217	4-673-299-01	[CH]...INVERTER TAPE
B2	4-644-637-01	GRIP, M2 EG
B3	4-665-205-01	SPECIAL FLAT HEAD (EG GRIP), M2
B14	4-641-726-41	SCREW (M2), SPECIAL HEAD

NOTE :
Set the DIP switch on the MBX-80 board (Main board) to match with the LCD that is used in this computer.

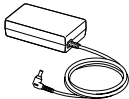


The upper position where ON indication is shown is the ON position . The lower position is the OFF position.

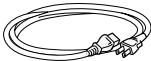
No.	1	2	3	4
ON/OFF	0	0	1	0
0 : ON 1: OFF				

Ref.No.	Part No.	Description
		ACCESSORIES *****
▲801	1-477-205-51 \$	ADAPTOR, AC
802	A-8110-809-A \$ #	BP2NX SNT (U) ASSY (S)
▲803	1-757-562-21	CORD, POWER
	4-672-184-01	QUICK START

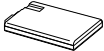
801
AC Adaptor (1)



803
Power Cord (1)



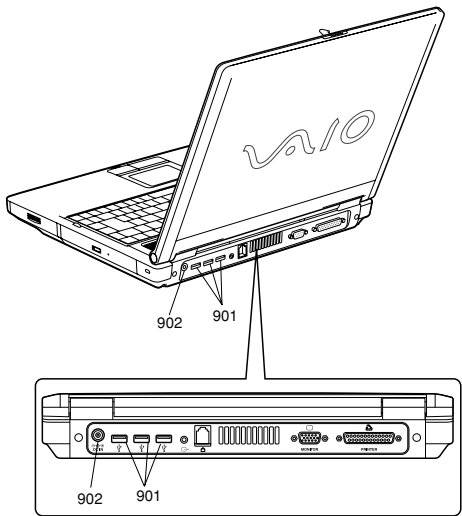
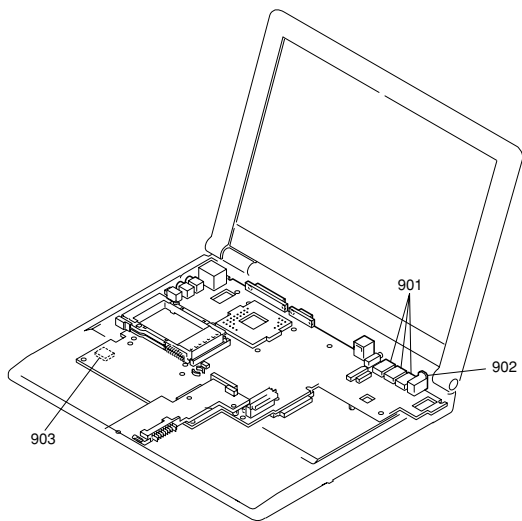
802
Battery Pack (1)



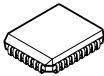


The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

3-3. Connector Section (CH Type Only)

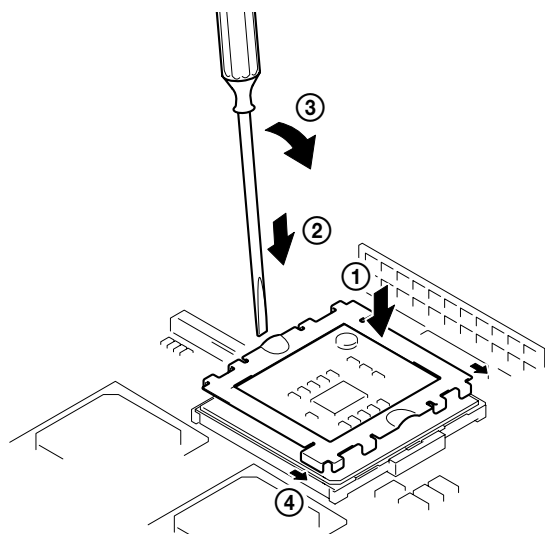


Ref.No.	Fig.	Part No.	Description
901		1-817-535-11	[CH]...NE5.1, USB-CN USB connector
902		1-779-745-21	JACK, DC DC IN connector
903		1-805-246-11	NE5.1 BIOS ROM BIOS ROM

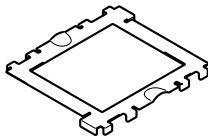
* Among the parts that are used on the boards of this model, only the connectors that are show in the list can be replaced.
(The parts other that the specified connectors cannot be replaced.)

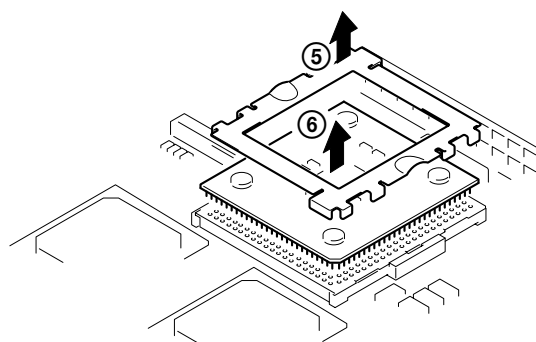
4-1. Replacing the CPU

1. Removing the CPU



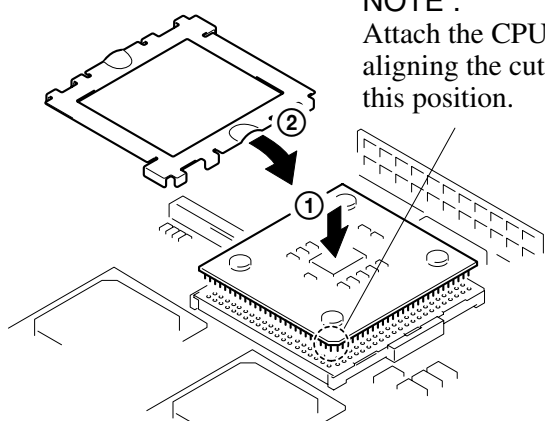
- ① Install the special tool in the CPU.
- ② Insert a flat head (-) screwdriver tip into the groove as shown.
- ③ While holding the special tool, slant the screwdriver in the direction of the arrow.
- ④ The base under the CPU moves slightly in the direction of the arrow and the CPU lock is released.

Fig.	Part No.	Description
	J-2507-309-1	JIG FOR CPU



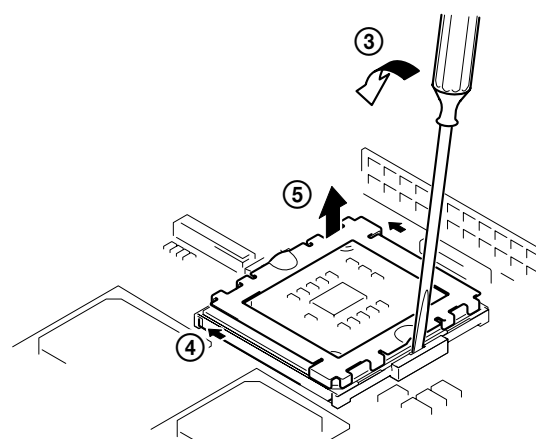
- ⑤ Remove the special tool.
- ⑥ The CPU can be removed upward.

2. Installing the CPU



NOTE :
Attach the CPU while aligning the cut-out with this position.

- ① Insert all pins of the replacement CPU into the holes of the base and push the CPU in the direction of the arrow.
- ② Install the special tool in the CPU.



- ③ Insert a flat head (-) screwdriver tip into the groove as shown.
While holding the special tool, slant the screwdriver it in the direction of the arrow.
- ④ The base under the CPU moves slightly in the direction of the arrow and the CPU is locked.
- ⑤ Remove the special tool.

NOTE :


- Do not use screwdrivers having a large tip than the width of the groove.
Otherwise, it may cause the groove to be damaged.
- When installing the special tool in the CPU, align the convex of the base.

List of PCG-FR Series (As of March, 2003)

Model Name	Service Manual Part No.
PCG-FR130	9-876-046-02

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Revision History

Suffix	Ver.	Date	Contents	QM No.
-01	Ver. 1	2003.02.12	First Edition	
-02	Ver. 2	2003.02.24	 Page 3-2	N2003_021CK
< Remarks >				